Amendments to the Claims

1. (Currently Amended)   ~~Method~~ A method of reconstructing an image from measured line-integrals of an object, the method comprising the steps of: binning of the measured line-integrals into a plurality of temporal bins; determining a plurality of motion fields for the plurality of temporal bins; selecting first data from a selected bin of the plurality of temporal bins; forward-projecting an intermediate image for forming second data by using a motion field of the plurality of motion fields that belongs to the selected temporal bin; determining a difference between the first data and the second data; up-dating the intermediate image on the basis of the difference.

2. (Currently Amended)   ~~Method~~ The method according to claim 1, wherein the intermediate image is up-dated on the basis of a back-projection performed by using the motion field that belongs to the selected temporal bin.

3. (Currently Amended)   ~~M~~The method according to claim 1, wherein the plurality of motion fields contains information with respect to a location shift and a local deformation of basis functions of the intermediate image with regard to the measured line-integrals.

4. (Currently Amended)   ~~Method~~ The method according to claim 1, wherein the steps of claim 1 are iteratively performed until an end criterion has been fulfilled.

5. (Currently Amended)   ~~Method~~ The method according to claim 1, wherein the plurality of motion fields describes at least one of a motion and deformation of the object with respect to a reference grid of the intermediate image.

6.(Currently Amended)   ~~Method~~ The method according to claim 1, wherein the plurality of motion fields is determined from a set of images where each image is reconstructed using data from one temporal bin of the plurality of temporal bins only.

7. (Currently Amended) ~~Image~~ An image processing device for reconstructing an image from measured line-integrals, comprising: a storage for storing the positron emission data; and an image processor for reconstructing the image from the measured line-integrals; wherein the image processor performs the following operation: binning of the measured line-integrals into a plurality of temporal bins; determining a plurality of motion fields for the plurality of temporal bins; selecting first data from a selected bin of the plurality of temporal bins; forward-projecting an intermediate image for forming second data by using a motion field of the plurality of motion fields that belongs to the selected temporal bin; determining a difference between the first data and the second data; and up-dating the intermediate image on the basis of the difference.

8. (Currently Amended) ~~Positron~~ A positron emission tomography system, wherein the positron emission tomography system includes a storage for storing measured line-integrals and an image processor, wherein the image processor performs the following operation: binning of the measured line-integrals into a plurality of temporal bins; determining a plurality of motion fields for the plurality of temporal bins; selecting first data from a selected bin of the plurality of temporal bins; forward-projecting an intermediate image for forming second data by using a motion field of the plurality of motion fields that belongs to the selected temporal bin; determining a difference between the first data and the second data; up-dating the intermediate image on the basis of the difference.

9. (Currently Amended) ~~Computer~~ A computer program stored on a computer readable medium ~~product~~ comprising computer program means to cause a processor to execute the following steps when the computer program means are executed on the processor: binning of the measured line-integrals into a plurality of temporal bins; determining a plurality of motion fields for the plurality of temporal bins; selecting first data from a selected bin of the plurality of temporal bins; forward-projecting an intermediate image for forming second data by using a motion field of the plurality of motion fields that belongs to the selected temporal bin; determining a difference between

the first data and the second data; up-dating the intermediate image on the basis of the difference.